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July 21, 2009

Elizabeth Braziel, Project Officer  
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U.S. EPA Region VI  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733

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Dear Ms. Braziel,

Enclosed is the Cherokee Nation Environmental Programs - Inter-Tribal Environmental Council's (ITEC), FY09 Third Quarter Report for the Clean Air grant (XA-96674301-0) (FY09). The Cherokee Nation's Accounting Department will forward the financial status reports. If you have any inquiries or need additional information, feel free to contact Ryan Callison at (918) 453-5093.

Sincerely,

Tom Elkins  
Environmental Programs Administrator  
Cherokee Nation Environmental Programs

**CHEROKEE NATION - ITEC**

**Clean Air Act, Section 103 Grant  
(XA-96674301-0 FY09)**

**FY09 Third Quarter Report  
4-1-09 thru 6-30-09**

**submitted to the**

**Clean Air Section  
U.S. Environmental Protection Agency, Region VI**

**Dallas, Texas**

**for the**

**Inter-Tribal Environmental Council (ITEC)**

**prepared by the**

**Cherokee Nation  
Environmental Programs  
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## **CHEROKEE NATION - ITEC**

**Clean Air Act, Section 103 Grant  
(XA-96674301-0 FY09)**

**FY09 Third Quarter Report  
4-1-09 thru 6-30-09**

### **Grant Information**

#### **Quality Assurance Project Plan (QAPP) Dates:**

<b>Criteria:</b>	<b>Approved January 9, 2009</b>
<b>PM2.5:</b>	<b>Approved July 22<sup>nd</sup>, 2008</b>
<b>IMPROVE:</b>	<b>National Program Approved</b>
<b>CASTNet:</b>	<b>National Program Approved</b>
<b>Mercury:</b>	<b>National Program Approved</b>
<b>National Trends:</b>	<b>National Program Approved</b>
<b>Mercury Trends:</b>	<b>Under development by NADP</b>
<b>Toxics:</b>	<b>Approved February 13, 2009</b>
<b>CNEP QMP:</b>	<b>Approved May, 28th 2009</b>

**All QMP's and QAPPs are effective for one year from the approval date.**

## ***I. INTRODUCTION***

### ***ITEC Consortium***

Through a Memorandum of Agreement signed in October of 1992, the Cherokee Nation has been delegated authority by the ITEC member tribes to serve as the "lead agency." As the lead agency for ITEC, the environmental programs office is committed to providing environmental management for U.S. EPA environmental grants.

## ***II. TASKS, OBJECTIVES & OUTPUTS***

Under the 2009 ambient air-monitoring grant, the primary tasks involve:

- 1) ambient air monitoring (O<sub>3</sub>, CO, NO<sub>x</sub>, NO<sub>y</sub>, SO<sub>x</sub>, PM<sub>2.5</sub>, PM<sub>10</sub> & met parameters) at 5 sites; Tahlequah, Newkirk, Stilwell, Pryor, & Marble City
- 2) IMPROVE visibility monitoring (Newkirk)
- 3) CASTNet dry deposition monitoring (Stilwell)
- 4) NCORE trace gas monitoring (Stilwell)
- 5) Mercury Deposition Network (MDN); (Stilwell, Newkirk, and Pryor)
- 6) Mercury Trends Network (MTN); Speciated Mercury Sampling (Stilwell)
- 7) National Trends Network (NTN); (Stilwell)
- 8) Mobile particulate (continuous PM<sub>2.5</sub> & PM<sub>10</sub>) monitoring for tribal areas
- 9) technical assistance to tribes (independent quarterly audits, data management, AQS support, criteria & PM<sub>2.5</sub> technical support, source identifications, permit review, etc.)
- 10) Emissions inventory preparation, training, and IPP development
- 11) Network data management and analysis
- 12) CNEP training and staff development
- 13) Air toxics metals sampling and analysis
- 14) Tribal air monitoring grant objectives & priorities

## ***III. MISCELLANEOUS***

## ***Task 1: Criteria Pollutants & Meteorological Ambient Air Monitoring***

Ambient air monitoring for the criteria pollutants and meteorological data is occurring at five shelter locations (Tahlequah, Newkirk, Pryor, Stilwell, & Marble City).

Cherokee Nation/ITEC monitoring shelters include the Tahlequah, Newkirk, Pryor, Marble City & Stilwell continuous sites. The following types of monitors are at each location, with the EPA AQS site identifiers in parenthesis.

### ***Tahlequah Shelter*** (40-021-9002):

Ozone, PM10, NOx, & meteorological equipment

### ***Newkirk Shelter*** (IMPROVE) (40-071-9010):

Ozone, PM10, NOy, & meteorological equipment

### ***Pryor Shelter*** (40-097-9014):

Ozone, PM10, PM2.5FDMS, NOy, NOx, SOx, Metals, & meteorological equipment

### ***Stilwell Shelter*** (CASTNet) (40-001-9009):

Ozone, NOy, CASTNet dry deposition filter pack, mercury deposition network (MDN), national trends network (NTN), meteorological equipment, and continuous & non-continuous ammonia sampling.

### ***Marble City Shelter*** (40-135-9015):

Ozone, PM2.5, PM10, NOx, PM2.5 (2) & meteorological equipment

AQS data submittal is on schedule with data updates to the system every quarter including corresponding precision and accuracy data for all of the criteria pollutant monitors.

Continuous data from all sites is being uploaded to EPA's AirNow System every hour.

CNEP currently operates a collocated pair of PM2.5 samplers atop the Marble City shelter.

An ozone analyzer was added to the mobile monitoring shelter in 3<sup>rd</sup> quarter.

## ***Task 2: IMPROVE Monitoring***

IMPROVE sampling is ongoing with sample collection every Tuesday. Data recovery has been excellent with few equipment/mechanical problems. The IMPROVE sample modules are collocated with the Newkirk Shelter. U.C. Davis continues to provide technical support and maintenance for all IMPROVE sample modules. All IMPROVE data continues to be loaded into the VIEWS database.

The CENRAP RPO Policy Oversight Group (POG) has agreed to continue funding this site through FY09.

Note: The CNEP-ITEC grant **does not** cover any chemical analysis, supplies, or maintenance items of this project. These are exclusively paid for through the CENRAP RPO. The ITEC grant provides minimal staff support to change out filters every Tuesday.

CNEP IMPROVE data and reports are available at:  
[http://vista.cira.colostate.edu/IMPROVE/Data/IMPROVE/improve\\_data.htm](http://vista.cira.colostate.edu/IMPROVE/Data/IMPROVE/improve_data.htm)

Plans are underway to move the IMPROVE samplers from Newkirk to the Stilwell NCORE site. The IMPROVE samplers will add the speciation component needed for NCORE siting.

### ***Task 3: CASTNet monitoring***

CASTNet dry deposition sampling is ongoing with sample collection every Tuesday. Data recovery has been good with few equipment/mechanical problems. Annual CASTNet reports are provided to EPA R6 and CNEP via EPA contractor MacTec.

A continuous ammonia analyzer continues collecting hourly averages of ambient ammonia.

CNEP CASTNet ozone data is 40 CFR part 58 compliant.

### ***Task 4: NCORE Trace Gas Monitoring***

The CNEP NCORE monitoring station is fully operational. Current equipment includes: trace CO, SO<sub>2</sub>, NO<sub>y</sub>, and a non-trace NO<sub>x</sub>. Other equipment includes digital datalogging capabilities, zero air source, and calibration devices.

CNEP has installed a MetOne PM<sub>2.5</sub> FEM beta attenuation analyzer. It has been calibrated, audited, and placed online.

A PM Coarse sampling station has been installed atop the NCORE building. CNEP is utilizing two R&P 2025 FRM samplers for filter based PM Coarse measurements with the PM<sub>2.5</sub> and PM<sub>10</sub> difference method. PMC sampling began in December 2008.

A collocated PM<sub>10</sub> FRM was added to perform NAAQS comparisons for PM<sub>10</sub>.

CNEP has submitted the NCORE work plan and "NCORE Self-Assessment schedule".

Continuous data from the NCORE site is uploaded to EPA's AirNow System every hour.

### ***Task 5: Mercury Deposition Network (MDN) Monitoring***

Mercury Deposition Network (MDN) wet deposition samplers have been in operation at the CASTNet site (OK99) since March 1 2004, the Newkirk site (OK15) since March 1, 2005 and the Pryor site (OK19) since March 1<sup>st</sup> 2009. Data collection and recovery has been excellent. Little or no problems have occurred with the sampling apparatus.

MDN sampling at Newkirk and Pryor terminated in third quarter due to budgetary constraints.

The Stilwell OK99 site will remain operational for the remainder of FY09.

Illinois State University performs quarterly inspections, audits, and calibrations on both MDN sites through contract.

Calendar year data summaries are available in July for the previous calendar year.

Site specific MDN data reports and yearly summaries are available at the following website:  
<http://nadp.sws.uiuc.edu/sites/siteinfo.asp?id=OK15&net=MDN>  
<http://nadp.sws.uiuc.edu/sites/siteinfo.asp?id=OK99&net=MDN>  
<http://nadp.sws.uiuc.edu/sites/siteinfo.asp?id=OK19&net=MDN>

### ***Task 6: Mercury Trends Network (MTN) Monitoring***

EPA Clean Air Markets Division donated a Tekran Mercury Analyzer to CNEP in FY08. It was installed to compliment the Stilwell NCORE monitoring station and be collocated with the current onsite Mercury Deposition Network (MDN) sampling operations.

The CNEP MTN monitoring station has an automated system utilizing a Tekran model 2537A analyzer with model 1130 and 1135 speciation units. The mercury detector consists of a Cold Vapor Atomic Fluorescence Spectrometer (CVAFS). The system includes a quartz annular denuder, quartz particulate-filter, and gold traps. This system runs automatically and produces 5-minute integrated atmospheric dry mercury (Hg<sub>0</sub>) values while collecting reactive gaseous phase mercury (RGM) and particulate bound mercury (PHg) over a 3-hour integration period. RGM and PHg values are generated every 4 hours (i.e., 6 values per day). The system is connected to a computer for data archive, telemetry and remote checking of instrument status at the CNEP offices.

The atmospheric dry mercury analyzer went online October 20<sup>th</sup>, 2008.  
The RGM and P-Hg instruments went online February 2009.

Tekran speciated mercury data will soon be available through the NADP website. CNEP is currently researching methods of entering the data into AQS.

### ***Task 7: National Trends Network (NTN) Monitoring***

The Stilwell NTN sampler is operational with weekly precipitation samples being collected every Tuesday. Sampling began on 5/22/07.

Stilwell OK99 NADP NTN site data reports and yearly summaries are available at the following website: <http://nadp.sws.uiuc.edu/sites/siteinfo.asp?id=OK99&net=NTN>

NTN sampling will be temporarily discontinued in FY10 due to funding.

### ***Task 8: Mobile Particulate Monitoring***

Cherokee Nation has developed a mobile particulate monitoring program. The mobile particulate monitoring station consists of a PM2.5 TEOM and a PM10 TEOM. The unit has onsite meteorological monitoring capabilities. Each tribe must sign a memorandum of agreement (MOA) which is to be agreed upon by both parties when the mobile shelter is deployed.

The current mobile monitoring location is Fort Gibson Oklahoma in Cherokee Nation tribal jurisdiction. Sampling began on February 29, 2009.

Each monitoring location meets EPA approved siting criteria for continuous PM monitoring.

CNEP will deploy the mobile monitoring station at the Osage Nation in FY10. Initial preparations are underway.

All data is entered into AQS per EPA's 90 day requirement. The mobile monitoring station also submits real-time data to EPA's AirNow system. Data produced from this system is considered "screening data". This allows CNEP and the host tribe to determine if future monitoring is warranted.

An ozone analyzer was added to the mobile shelter in 3<sup>rd</sup> quarter.

Preparations underway to move mobile shelter to Osage Nation for an FY10 project.

### ***Task 9: Technical Assistance to Tribes***

ITEC continues to provide technical support for all tribes that have assumed monitoring activities and developed individual programs. Assistance is provided through monitor maintenance, quarterly audits, calibrations, troubleshooting, QAPP review, and AQS data entry.

ITEC continues to provide independent equipment audits for the following tribes: Jemez Pueblo, Quapaw Tribe, Sac & Fox Nation, and Delaware Nation. Following each audit a detailed audit report is prepared for each tribe within 30 days of the audit.

Speake to Tribe and discuss report outputs  
- Activities covered this quarter  
-

### **Task 10: EI Preparation, Training, and IPP Development**

CNEP staff have identified training to assist in the future development of a tribal EI.

CNEP staff have committed to attend the following trainings: *have*

EI Training at EPA Region 6 Air Meeting; March 24-27<sup>th</sup>, 2009; Austin, Texas  
EPA's 18<sup>th</sup> Annual International EI Conference; March-April 2009; Baltimore, MD.  
EI/TEISS Training (ITEP); June 16-19; Las Vegas, NV  
Intro to EI's (EPA Online); at employee's convenience.  
Intro to TEISS (ITEP Online); at employee's convenience

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CNEP has obtained the TEISS software. IPP will be developed using TEISS.

### **Task 11: Monitoring Network Data Management and Analysis**

CNEP staff reviews all NAAQS data submitted to AQS for accuracy and compliance purposes. Each review outlines data completeness, P&A requirements, and NAAQS violations if any.

### **Task 12: CNEP Professional Training and Development**

*(trainings, workgroups, conferences, and related meetings)- yearly to date totals.*

ITEP Tribal Air Monitoring Support (TAMS) Steering Committee Meeting – Ryan  
EPA PM2.5 Speciation (IMPROVE-CSN) Training – Dallas, TX. – Kent, April, & Ryan  
EPA Region 6 Tribal Summit – Staff  
USGS TEKRA Mercury Analyzer setup visit & training – Larry  
ODEQ Ozone NAAQS Meeting – Kent, April, & Ryan  
NAU-ITEP "Advanced Air Quality Management Course" – Tahlequah, OK. – Staff  
TEKRA mercury analyzer setup and training – Stilwell, OK. – Staff  
ODEQ Air Quality Council Meeting; Hg presentation, Okc., OK. – Larry Scrapper  
EPA National Air Quality Conference – Addison, TX. – Staff  
EPA Region 6 Air Monitoring Meeting – Austin, TX. – Staff  
Emissions Inventory Conference and Training; Baltimore, MD. – Dani Keese  
NADP Spring Meeting; Pensacola, Florida. Jeremy Freise and Larry Scrapper.  
"Introduction to EI's" online ITEP course – Dani Keese.  
8-hr HAZWOPER refresher – staff  
Annual ITEC conference – staff  
Tribal EI software training; Las Vegas, NV. – Dani Keese

### ***Task 13: Air Toxics Metals Sampling and Analysis***

Metals sampling began December 2<sup>nd</sup> 2008. Samples were collected on a 1 in 6 day schedule. Sampling was terminated at end of May due to budgetary constraints. Six months of data were collected. Data for the first four months have been evaluated. Lead did not approach or exceed NAAQS in any sample. Arsenic and chromium were the only metals that exceeded EPA Region 6 Human Health Medium-Specific Screening Levels in one or more samples.

Monthly data reports are being provided by the contract lab Eastern Research Group. AQS data is being uploaded by the contractor every quarter.

## **Task 14: Tribal Air Monitoring Grant Objectives & Priorities**

**Where applicable the CNEP air program has ensured the following air monitoring grant priorities have been achieved:**

PRIORITY 1: Produce quality data and submit updated Quality Management Plan and Quality Assurance Project Plans to EPA Region 6 annually.

OUTPUT: *QMP and QAPPs*

TIMEFRAME: *Annual update one year after approval date.*

PRIORITY 2: Operate and report data from ambient air monitor networks into the EPA Air Quality System. Each site parameter should have 75% data return for each quarter.

OUTPUT: *AQS*

TIMEFRAME: *Quarterly, no later than 90 days after the end of the calendar quarter.*

PRIORITY 3: Notify EPA Region 6 of any situation (such as monitor malfunction or data validation issue) that results in the loss of more than two consecutive PM-2.5 or PM-10 sampling days or the loss of 120 consecutive hours of any continuous data. Identify the corrective action taken to minimize the loss of data.

OUTPUT: *Letter*

TIMEFRAME: *As soon as possible, but no more than 14 days after the event.*

PRIORITY 4: Notify EPA-R6 (6PD-Q) prior to establishing, modifying, relocating, or discontinuing any air monitor and/or site.

OUTPUT: *Letter to EPA-R6*

TIMEFRAME: *30 days prior to change*

PRIORITY 5: Conduct ambient air monitoring network reviews. Conduct analyses of data to aid in program development/assessment/evaluation.

OUTPUT: *Letter*

TIMEFRAME: *Annually*

PRIORITY 6: Certify all 2008 ambient data and quality assurance data in the Air Quality System (AQS) are complete and accurate.

OUTPUT: *Data certification letter with appropriate AQS AMP reports.*

TIMEFRAME: *July 1, 2009*

PRIORITY 7: Actively support and deliver PM-2.5 continuous data into AIRNow.

OUTPUT: *AIRNow*

TIMEFRAME: *Present target data delivery is 10 minutes.*

PRIORITY 8: Actively support and deliver PM-10 continuous data into AIRNow.

OUTPUT: *AIRNow*

TIMEFRAME: *Present target data delivery is 10 minutes.*

PRIORITY 9: Actively support and deliver ozone data into EPA's AIRNow.

OUTPUT: *AIRNow*

TIMEFRAME: *Daily*

### **III. MISCELLANEOUS**

April Hathcoat and Kent Curtis participate in the CENRAP monitoring workgroup.

CNEP staff participate in the monthly EPA/States/Tribes air monitoring conference calls.

Ryan Callison was selected by the TAMS steering committee to the National Air Monitoring Committee headed up by EPA RTP (NACA Monitoring Committee).

Cherokee Nation Treatment as State Application approved. CNEP will work with EPA in the future on a CAA105 grant match waiver from the Regional Administrator.

Ryan Callison participates in activities on the Clean Air Act Advisory Council (CAAAC).

CNEP assisted NAU ITEP to conduct and host a two day "Advanced Air Quality" training course in Tahlequah, Oklahoma. The course was held December 9-11, 2008.

High speed wireless internet was installed at the Stilwell NCORE location.

CNEP provided yearly ozone analyzer maintenance training to the Sac & Fox and Delaware tribes.

CNEP submitted its NCORE Work Plan and NCORE Readiness Assessment to EPA at the end of June, 2009.

CNEP submitted the yearly AQS data certification in late June.